USER MANUAL

EOe-1

10/100Base Ethernet over G.703 Unframed E1

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ISO 9001

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This manual supports the following models:
EOe-1 Ethernet over E1

Specifications subject to change without notice.

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Technical Inquiry Form

Chapter 1. Introduction

1.1 General

Thank you for choosing the ***EOe-1*** Ethernet Bridge over E1. The ***EOe-1*** is a Channel Service Unit for unframed ITU-T G.703 E1 that features a built-in Ethernet bridge. The CSU has a built-in Network Terminating Unit (NTU) and may connect to either 75 Ohm unbalanced, unframed E1 via coaxial cable and BNC connectors or to 120 Ohm balanced, unframed E1 via twisted pairs and a shielded RJ-48 connector. The ***EOe-1*** Ethernet Bridge uses HDLC encapsulation to transport Ethernet packets across the WAN and supports 10/100 auto-negotiation or manual settings for 10M, 100M, Full or Half Duplex Ethernet. The Ethernet port also supports a standard auto-MDIX feature that will completely eliminate Ethernet cross-over cables or the guessing that is sometimes involved in choosing a cable when connecting to a HUB or a PC.

The ***EOe-1*** is very easy to configure by using simple DIP switch settings. Both the E1 and Ethernet Bridge configuration settings require only two 8-pole DIP switches. Once configured and set, the ***EOe-1*** requires no further adjustments.

To skip the rest of the product introduction for the ***EOe-1*** , please go directly to Chapter 2, "Installation".

1.2 Technical Specifications

E1 link	
Framing	Unframed
Bit Rate	2,048 Kbps
Line Code	AMI
	HDB3
Line Impedance	75 Ohms (BNC coaxial)
	120 Ohms (RJ-48 twisted pair)
Relative Receive Level	0 to -43dB
"Pulse" Amplitude	Nominal 2.37V+/-10% for 75 ohms
	Nominal 3.00V+/-10% for 120 ohms
"Zero" Amplitude	+/-0.1V
Transmit Frequency	
Tracking	
Internal Timing	+/-30 ppm
Loopback Timing	+/-50 ppm
Jitter Performance	According to ITU-T G.823
Complies With	ITU-T G.703
Interface Connectors	BNC (unbalanced)
	RJ-48 (balanced)

Ethernet Bridge

Features

- 10BASE-T/100BASE-TX, Full Duplex or Half Duplex
- HP Auto-MDI/MDIX detects and corrects crossed cable
- IEEE 802.3x flow control
- Real-time filtering with 256 address tables
- Automatic address learning, aging and deletion after 5 minutes
- Up to 340 packet-buffering capacity
- Forwarding and filtering rate at WAN speed with throughput latency of 1 frame.
- Auto padding of undersized packets to meet the minimum Ethernet packet size requirement
- Buffering modes can be selected according to the setting of WAN and LAN line speeds
- Ethernet interface has automatic Twisted Pair polarity correction

Specifications

- **LAN**

Standard	Fully compliant with IEEE 802.3/802.3u
Connector	Shielded RJ-45
Speeds	10BASE-T/100BASE-TX, Full or Half Duplex
Frames	Supports 64 to 1522 byte packet lengths, standard and extended length frames for VLAN tagging, etc.

- **WAN**

Protocol	Synchronous HDLC
Data Rates	16K, 32K, 64K, 128K, 256K, 512K,1024K or 2048Kbps (DIP Switch selected)

Diagnostics

Test Switches/Diagnostics	**Local loop back**
	Remote loop back
	Test pattern / generator

LED indicators

Power	**Green**	**Power**
Signal Loss	**Red**	**E1 link signal loss**
Alarm	**Red**	**E1 link alarm, includes: BPV error / All ones(AIS)**
Link	**Green**	**Ethernet link is good**
TD	**Green**	**Transmit data on Ethernet**
RD	**Green**	**Receive data on Ethernet**
100	**Green**	**Ethernet is 100Base**
Full	**Green**	**Ethernet is Full Duplex**
Error	**Red**	**Ethernet Bridge Error (overflow)**
Error	**Red**	**Bit Errors received during BERT Test**
Test	**Red**	**Loop back and/or BERT Test active**

Physical

Height:	**45 mm (1-3/4")**
Width:	**195 mm (7-11/16")**
Depth:	**248 mm (9-25/32")**
Weight:	**850 g (1lb 14oz)**

Power supply

Voltage	**90~250VAC (universal AC model)**
	18~72VDC (universal DC model)
Frequency	**47 to 63 Hz for AC**
Power consumption	**10 Watts**
Fuse	**0.5A slow blow for AC model**
	no fuse in DC model

Environment

Temperature	**0-50C / 32-122F (operation)**
Humidity	**0 to 90% non-condensing**

1.3 E1 signal structure

The E1 line operates at a nominal rate of 2.048Mbps. The data transferred over the E1 line is transmitted transparently as a bit stream in Unframed E1 mode.

E1 line signal

The basic E1 line signal is coded using the **Alternate Mark Inversion** (AMI) or **HDB3** rule.

In the AMI format, "ones" are alternately transmitted as positive and negative pulse, whereas "zeros" are transmitted as a zero voltage level. AMI is not used in most 2.048Mbps transmissions because synchronization loss occurs during long strings of data zeros."

In the HDB3 format, a string of four consecutive zeros is replaced with a substitute string of pulses containing an intentional bipolar violation. The HDB3 code substitutions provide high pulse density so that the receiving equipment is able to maintain synchronization with the received signal.

1.4 EOe-1 Capabilities

E1 link line coding

The ***EOe-1*** supports two E1 line codes:
AMI coding.
HDB3 coding.

E1 framing formats

The ***EOe-1*** supports only Unframed E1 format.

WAN data rates

The ***EOe-1*** supports WAN channel rates of 2.048M, 1.024M, 512K, 256K, 128K, 64K, 32K, and 16Kbps and is hardwired to a synchronous Ethernet Bridge.

1.5 System Timing Considerations

E1 link timing

The ***EOe-1*** E1 link receive path always operates on the receive clock. The ***EOe-1*** recovers the receive clock from the received E1 link data signal. The source of the ***EOe-1*** E1 link transmit clock can be selected by the user.

E1 Link Transmit Timing Settings

- **Recovery (loop back) timing**:

The ***EOe-1*** E1 link transmit clock is locked to the recovered receive clock. This is usually the timing mode selected for network operation.

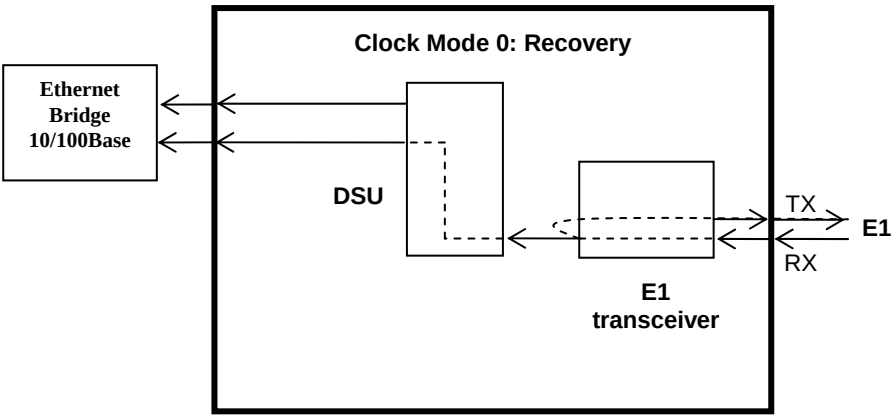

Figure 1.1: Recovery timing

- **Internal timing**:

The ***EOe-1*** E1 link transmit clock is derived from the internal clock oscillator. This timing mode is necessary in point-to-point applications over leased line. In this case, one ***EOe-1*** must use the internal oscillator while the other must operate from the recovered clock.

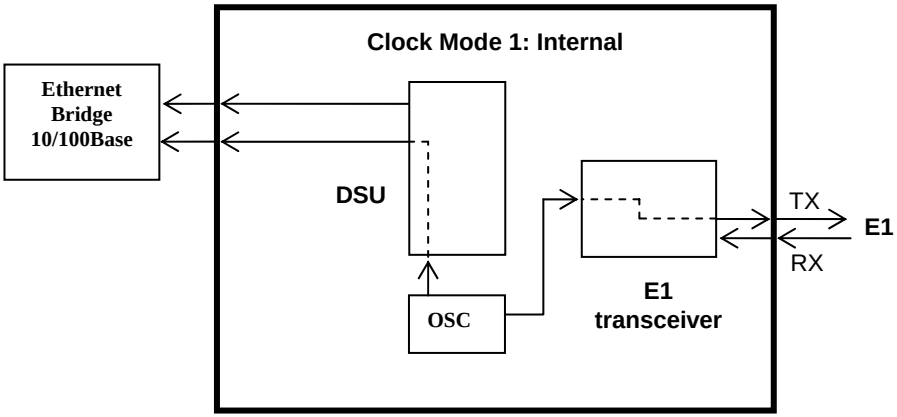

Figure 1.2: Internal Timing

1.6 Functional Description

The ***EOe-1*** is a single port access unit ***for Unframed E1 only***. The ***EOe-1*** AC model has a universal, auto-switching power supply (90~250VAC) while the DC model's internal DC-DC module accepts DC voltages from 18 to 72 volts.

The ***EOe-1*** WAN supports user-selectable speeds, which halves the main E1 rate of 2.048Mbps, down to a minimum of 16Kbps. The E1 line is fully compliant with the ITU-T G.703 standard and has a receive sensitivity of up to -43 dB on twisted pair or coax cable. This provides an approximate operating range up to 2km (using 22AWG twisted pairs).

The ***EOe-1*** also fully meets other E1 specifications including ITU-T G.823 for jitter.

The ***EOe-1*** is capable of performing local and remote loop back. The operator at either end of the line may test both the ***EOe-1*** and the line in the loop back mode. The loop back is controlled by a manual push-button switch.

A front panel switch generates an internal 511 bit pseudo random test pattern, according to ITU-T, for direct end-to-end integrity testing. The Err indicator flashes for each bit error detected.

The ***EOe-1*** unit is built in a compact case that can be placed on desktops or shelves or installed, by means of an appropriate adapter, in a 19" rack. (please see Chapter 2)

1.7 Typical System Applications

General

The ***EOe-1*** is not capable of fractional E1 operation and should be used where only an unframed, transparent 2.048Kbps transmission is available or required.

In the following application, the ***EOe-1*** is connected in a point-to-point application. In this case one ***EOe-1***'s timing should be set to "Internal Oscillator", while the other should be set to "Recovery".

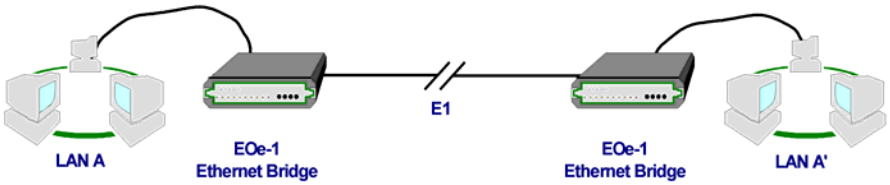

Figure 1.3 LAN to LAN with ***EOe-1*** Ethernet over E1

In the following application, the ***EOe-1*** is connected in an E1 network application. In this case both ***EOe-1***'s timing should be set to "Recover" their timing from the E1 network.

Figure 1.4 LAN to LAN with ***EOe-1*** Ethernet over E1

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Chapter 2. Installation

2.1 General

This chapter provides detailed instructions for mechanical installation of the ***EOe-1***. Following the completion of installation, please refer to Chapter 3 for operating information.

2.2 Site Preparation

Install the ***EOe-1*** within reach of an easily accessible grounded AC outlet. The outlet should be capable of furnishing 90~250VAC. DC power capable units connect via terminal block connection. Allow at least 10 cm (4 inch) clearance at the rear of the ***EOe-1*** for signal lines and interface cables.

2.3 Mechanical Assembly

The ***EOe-1*** is designed for tabletop or bench installation, and is delivered completely assembled. No provisions are made for bolting the ***EOe-1*** to the tabletop.

2.4 Electrical Installation

Power connection

AC power is supplied to the ***EOe-1*** through a standard 3-prong IEC receptacle. (Refer to Figure 2.1) The ***EOe-1*** should always be grounded through the protective earth lead of the power cable or via Frame Ground connection.

The AC line fuse is located in an integral-type fuse holder on the rear panel. Make sure that only fuses of the required rating are used for replacement. Do not use repaired fuses or short-circuit the fuse holder. The power cable must be disconnected before removing or replacing fuses.

Rear panel connectors

The interface connectors, located on the rear panel of the ***EOe-1*** (Refer to Figure 2.1), incorporate two BNC Coax and two RJ-45 connectors. (Appendix B provides detailed information on the interface connectors).

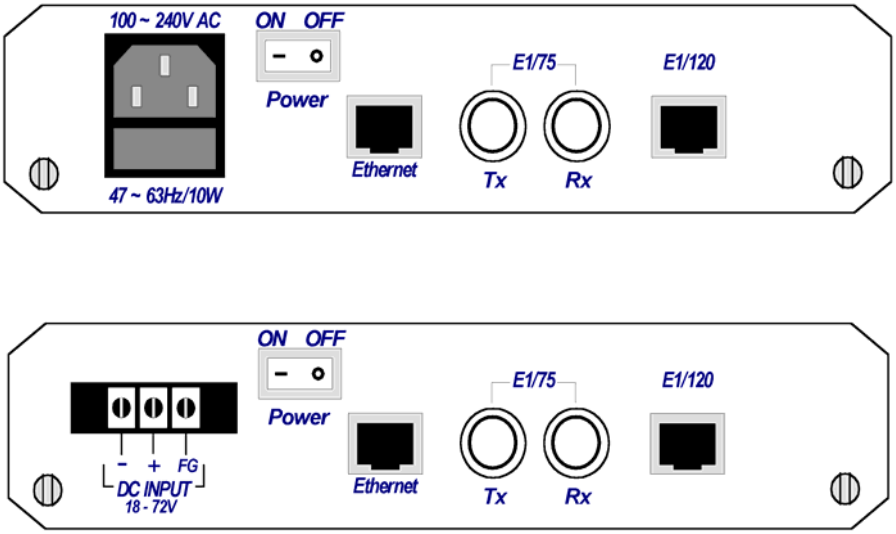


Figure 2.1 ***EOe-1*** rear panel AC & DC

E1 Line

BNC coax connectors

The pin assignment for BNC connector is as follows:

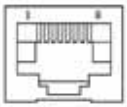
Pin:	Function:
Tx Center	TTIP (Transmit data out)
Tx Sleeve	TRING (Transmit data out)
Rx Center	RTIP (Receive data in)
Rx Sleeve	RRING (Receive data in)

RJ-45 E1 Connector

The pin assignment for the RJ-45 connector is as follows:

Pin:	Function:
4	TTIP (Transmit data out)
5	TRING (Transmit data out)
1	RTIP (Receive data in)
2	RRING (Receive data in)

RJ-45 Ethernet Connector



MDI	MDI-X
1. Tx +	1. Rx +
2. Tx -	2. Rx -
3. Rx +	3. Tx +
6. Rx -	6. Tx -

2.5 DIP Switches & Jumper Settings

Caution

To avoid accidental electric shock, disconnect the ***EOe-1*** power cord before opening the cover. Access inside the equipment is only permitted by authorized and qualified service personnel.

Procedure

a. Turn power OFF, Disconnect the power cord from the AC outlet.
b. Loosen the screws at the left/right of the rear panel.
c. Remove the PCB.
d. Adjust the DIP switches and jumpers as required, according to table 2.1. (Appendix A describes the DIP switches function in detail).
e. Replace the PCB and tighten the screw.

Table 2.1

Item	Function	Possible Settings	Set Place	Factory Setting
1	Sets Ethernet MAC filtering	On=filtered or Off=repeater	DIPSW1-1	repeater
2	Sets 802.3x Flow Control	On=enabled or Off=disabled	DIPSW1-2	disabled
3	Sets Auto negotiation	On=manual or Off=auto	DIPSW1-3	auto
4	Sets Ethernet Full/Half Duplex	On=half or Off=Full	DIPSW1-4	Full
5	Sets Ethernet speed	On=10M or Off=100M	DIPSW1-5	100M
6	Sets WAN speed	16Kbps to 2048Kbps	DIPSW1-6~8	2048Kbps
7	Sets Memory configuration	equal, favor WAN or favor LAN	DIPSW2-1~2	LAN
8	Sets E1 Transmit Timing	On=Internal or Off=recovery	DIPSW2-3	Recovery
9	Sets E1 Line Coder	On=AMI or Off=HDB3	DIPSW2-4	HDB3
10	Reserved	Reserved	DIPSW2-5	Reserved
11	Reserved	Reserved	DIPSW2-6	Reserved
11	Sets E1 Line Termination	On=75 Ohms or Off=120 Ohms	DIPSW2-7~8	120 Ohms

Note 1: When MAC filtering is disabled, the Bridge becomes an Ethernet repeater. Filtering enabled is the default mode for Bridging. However, the units are shipped with their configuration switch set for "repeater" mode.

Note 2: When the Ethernet negotiation is set to "auto", the settings for speed and duplex are ignored. For legacy equipment which does not support auto-negotiation, it is highly recommended to place SW1-3 in the ON position and manually set the speed (10 or 100) and duplex mode to match the connected Ethernet equipment.

Note 3: There is a 340 byte buffer that may be set in one of three operation modes: equal division (170 bytes each) between the LAN and WAN ports; large portion (308 bytes) allocated to the WAN port; or large portion allocated to the LAN port. When the WAN speed is set slow, efficiency may be increased by allocating a larger buffer on the WAN side.

2.6 Rack Mount Installation

All Standalone/Rack Series units have the option of adding standard EIA 19" rack mount capability. Two rack mount options provide for either mounting a single unit (half space) in a rack or for mounting two units in tandem (full space). In either situation, one standard rack unit space is required. Each rack mount kit provides all the necessary hardware for a complete installation.

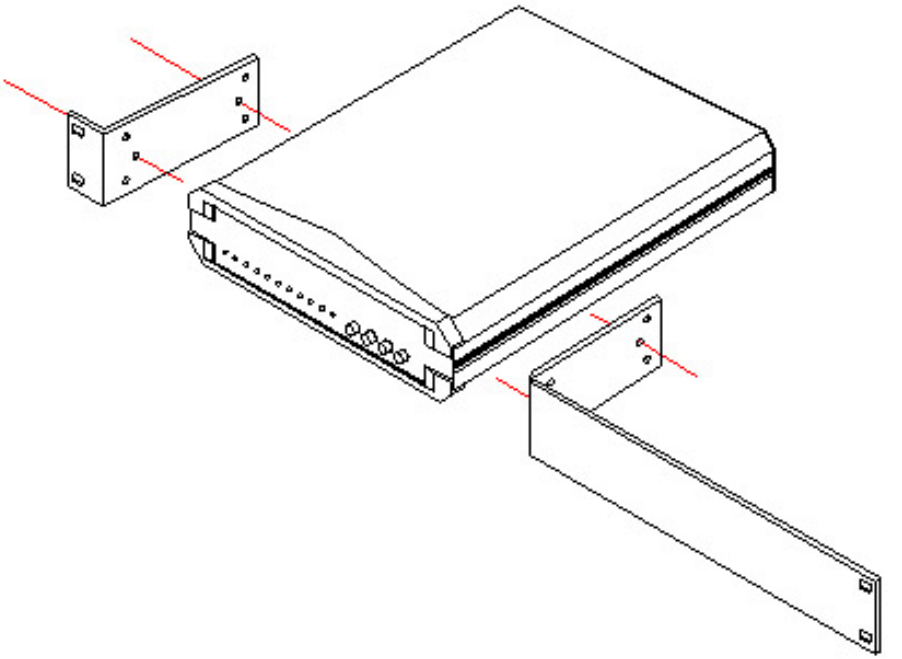


Figure 2.2: Rack Mount Installation, ETU01-SS.

In single unit installations, the unit may be placed in the left or right side position simply by reversing the rack mounting brackets. The kit includes, one (1) short and one (1) long rack adapter, four (4) 3x8mm self-tapping screws, and four (4) #12-24x0.5" screws.

In order to save rack mount space, units may be mounted in tandem. Please refer to the following drawing examples for this application.

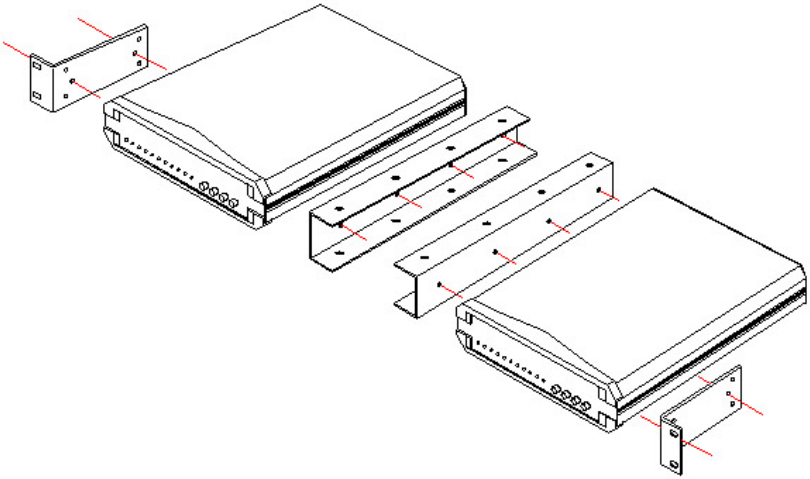


Figure 2.3: Tandem Units Mounting (Exploded)

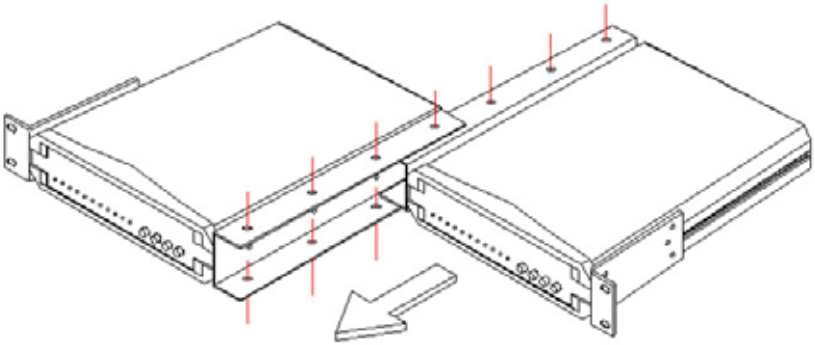


Figure 2.4: Tandem Units Mounting Detail

The tandem kit includes two (2) rack mount brackets, one (1) each of inner and outer central mounting brackets, twenty (20) 3x8mm self-tapping screws, and four (4) #12-24x0.5" screws.

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Chapter 3. Operation

3.1 General

This chapter describes the ***EOe-1*** controls and indicators, explains operating procedures, and supplies instructions for field strapping changes. Installation procedures (in chapters 2) must be completed and checked before attempting to operate the ***EOe-1***.

3.2 Controls and Indicators

All controls (push-button switches) and LED indicators are located on the ***EOe-1*** front panel. Depress a push-button to activate (turn ON) the corresponding control. Release the push-button to deactivate (turn OFF) the control.

The function of each push-button and indicator is described in Table 3.1 and Table 3.2.

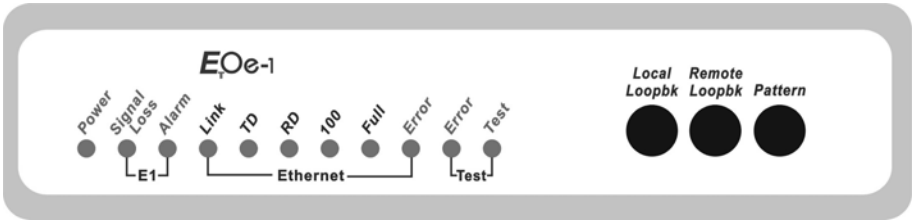

Figure 3.1 ***EOe-1*** Front Panel

Table 3.1 Control Functions

Item	Control Switch	Function
1	*Local Loopbk*	The local loop back switch causes the local *EOe-1* to loop received E1 data to its transmitter.
3	*Remote Loopbk*	The remote loop back switch causes the remote *EOe-1* to loop received E1 data to its transmitter.
4	*Pattern*	The pattern switch causes the *EOe-1* to send and receive a 511 test pattern. If errors are encountered, the Error LED indicator lights for each received error.

Table 3.2 LED indicators

Power	Green	Power
Signal Loss	Red	E1 link signal loss
Alarm	Red	E1 link alarms: BPV / All ones(AIS)
Link	Green	Ethernet link is good
TD	Green	Transmit data on Ethernet
RD	Green	Receive data on Ethernet
100	Green	Ethernet is 100Base
Full	Green	Ethernet is Full Duplex
Error	Red	Ethernet Bridge Error (overflow)
Error	Red	Bit Errors received during BERT test
Test	Red	Loop back and/or BERT test active

3.3 Operating Procedure

The ***EOe-1*** requires no operator attention once installed, except for occasional monitoring of the front panel indicators. Intervention is only required when:

- The ***EOe-1*** has to be adapted to new operational requirements.
- Diagnostic loops are required.

The ***EOe-1*** is turned on when its AC power cord (or central office DC power) is connected to an AC power outlet (or the DC input connections) and the power switch is turned to the ON position. The Power LED indicator will light, indicating that the ***EOe-1*** is on. Verify the ***EOe-1*** is in operation by checking that the front panel LED's match the following indicator conditions:

- Power: ON
- Signal Loss: OFF
- Alarm: OFF
- Link: ON
- TD: ON, OFF or Flashing
- RD: ON, OFF or Flashing
- 100: ON (for 100Base-TX)
- Full: ON (for Full Duplex Ethernet)
- Error: OFF
- Error: OFF
- Test: OFF

Chapter 3. Operation

Refer to Chapter 4 for the operation of the front panel push-button switches. Their usage is explained under the "Loop Back Tests" on page 25.

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Chapter 4. Test & Diagnostics

4.1 General

This chapter contains procedures for performing system diagnostic tests.

4.2 Loop Back Tests

The loop back test buttons (Local Loopbk and Remote Loopbk) and the LED indicators built into the ***EOe-1*** allow for rapid checking of the ***EOe-1*** and the E1 line. Before testing the operation of the data system equipment and their line circuits, ensure that all units are turned on, connected properly and are configured correctly.

4.3 Bit Error Rate Tester

When depressing the Pattern push-button switch, the Bit Error Rate Tester (BERT) can be activated in which the test pattern transmitted is received by another ***EOe-1*** (see Figure 4.1). When used opposite another ***EOe-1***, with the Pattern push-button switch depressed and transmitting the same pattern (V.52 511-bit), the complete link can be tested. If errors are encountered, the Error indicator LED will blink (for intermittent errors) or remain on continuously (for continuous errors).

In this example, both units at the ends of the E1 link have their pattern generators enabled.

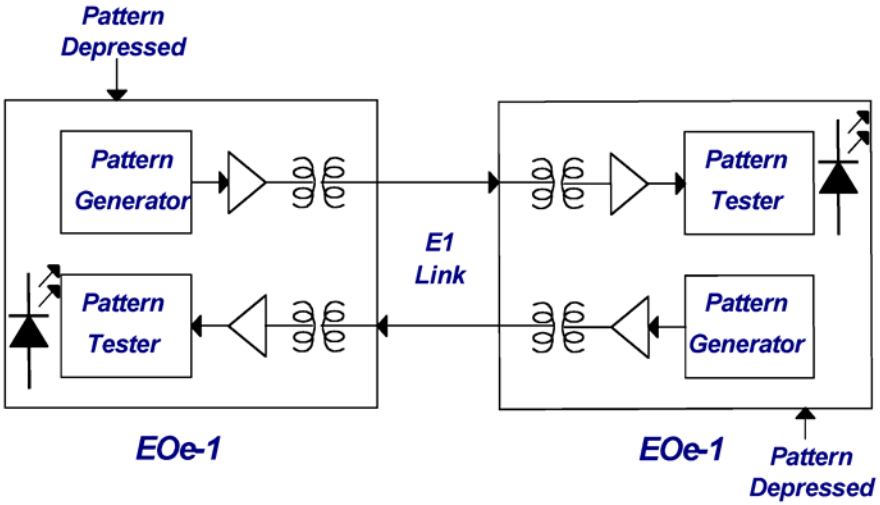


Figure 4.1 BERT operation

4.4 Local Loop Back

This test is activated by depressing the "Local Loopbk" button. This test checks the performance of the ***EOe-1*** and the connections between them. This test consists of looping the receive E1 signal back to the remote ***EOe-1*** . (see Figure 4.2):

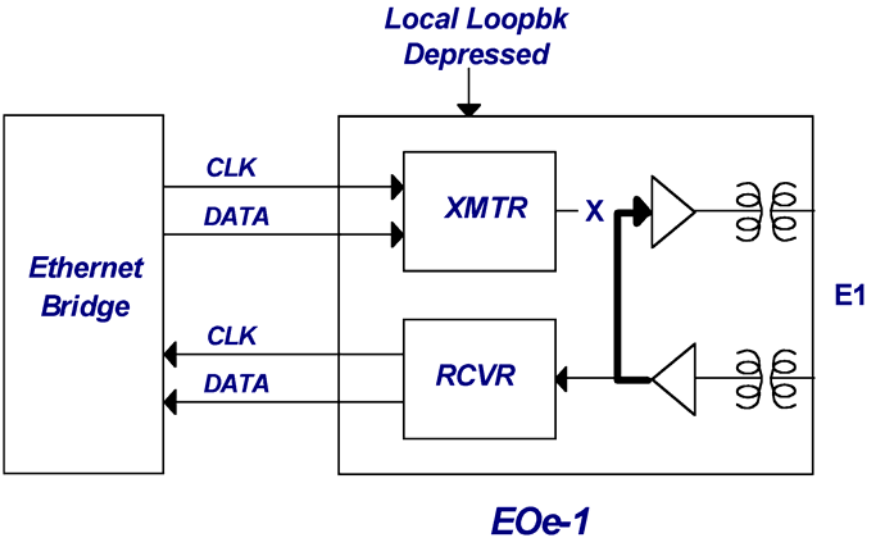


Figure 4.2 Local loop back

4.5 Remote Loop Back

This test is activated by depressing the "Remote Loopbk" push button. The test checks the performance both of the local and the remote ***EOe-1*** units, as well as their interconnecting lines. The remote digital loop back test consists of providing a loop back at the remote ***EOe-1*** (see Figure 4.3).

A system test may be performed by first depressing the remote loop back switch, then depressing the pattern switch. The test pattern will be generated, sent out the E1 link and looped back by the remote unit. If no errors are indicated by the error LED, the link test has been successful.

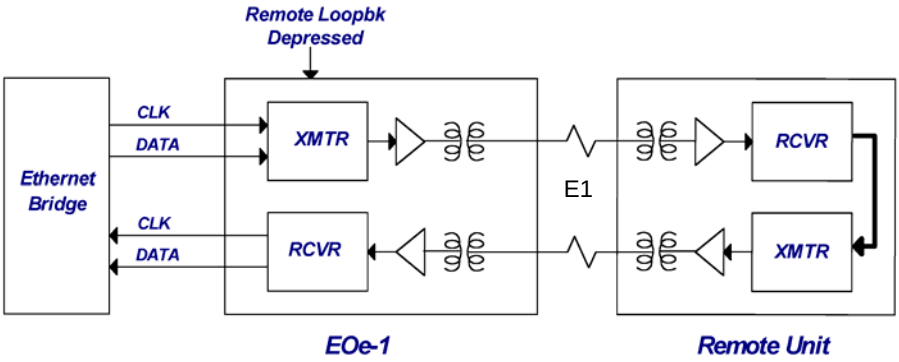


Figure 4.3 Remote loop back

Loop back test notes:

Use this method to quick test a standalone unit; With the E1 timing source set to internal oscillator, connect the E1 Tx to E1 Rx with a single coaxial cable. Press the Pattern switch. The E1 Tx and Rx circuits will be tested. The E1 signal loss and alarm LEDs should be off and no test errors should result on the error LED. Disconnect the Coax cable momentarily. The signal loss, alarm and error LEDs should all light. Reconnect the cable and they should all go out. This test may also be performed on the RJ-48 by making a loop back plug.

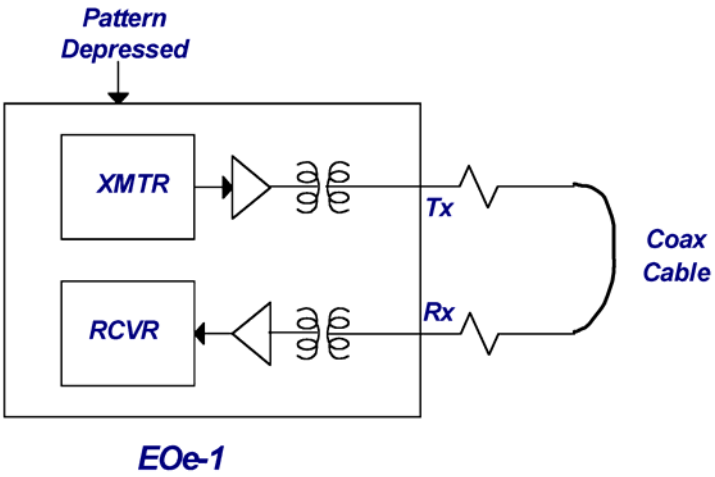


Figure 4.4 Standalone BERT Test

Most Ethernet link problems occur when trying to connect to older, legacy Ethernet equipment. Unless it can be confirmed that the connecting equipment supports auto-negotiation or what is sometimes referred to as "n-way" connections, it is recommended to disable the auto-negotiation feature and manually set the speed and duplex settings.

Almost all old 10Base-T equipment does not support Full Duplex Ethernet, so it is quite safe to set all 10Base-T equipment settings to Half Duplex. A wrong setting will result in extremely poor performance on the LAN connection. Here it should be noted that a good "link" indication does not necessarily mean the duplex setting is correct.

Additionally, there is 100Base-TX equipment which also does not support Full Duplex Ethernet. Equipment may not link or the performance could be poor if the Ethernet is improperly configured.

Auto MDIX may also cause some compatibility problems. Some Ethernet chips will "fall asleep" or shutdown if they are expecting an MDI device to connect with a crossover cable. If this problem should arise, please try connecting the Ethernet with a crossover cable.

A.1 DIP SW1 Bridge, Ethernet and WAN Speed

DIP	State			Function Description	Remarks
1	0			Disable filtering	(repeater mode)
	1			Enable MAC filtering	(Bridge mode)
2	0			Disable 802.3x flow control	
	1			Enable 802.3x flow control	
3	0			Ethernet Auto Negotiation	
	1			Ethernet manual setting	
4	0			Ethernet Full Duplex	
	1			Ethernet Half Duplex	ignored in auto
5	0			100Base-TX speed	
	1			10Base-T speed	
6-7-8	**6**	**7**	**8**	WAN Speed	
	0	0	0	WAN Speed 2048Kbps	
	1	0	0	WAN Speed 1024Kbps	
	0	1	0	WAN Speed 512Kbps	
	1	1	0	WAN Speed 256Kbps	
	0	0	1	WAN Speed 128Kbps	
	1	0	1	WAN Speed 64Kbps	
	0	1	1	WAN Speed 32Kbps	
	1	1	1	WAN Speed 16Kbps	

Table A.1 DIP SW1 Bridge, Ethernet and WAN Speed Settings

Note 1: "0" is equal to a switch setting of OFF while "1" is equal to a switch setting of ON.

Note 2: When auto negotiation is enabled (SW1-3 ON) the settings of SW1-4 & 5 are ignored.

A.2 DIP SW2 Memory Configuration and E1 Settings

DIP	State		Function Description	Remark
1-2	**1**	**2**	Memory Configuration	
	0	0	Memory Buffer: LAN to WAN 308 packets WAN to LAN 32 packets	
	1	0	Memory Buffer: LAN to WAN 170 packets WAN to LAN 170 packets	
	0	1	Memory Buffer: LAN to WAN 32 packets WAN to LAN 308 packets	
	1	1	Reserved	
3	0		E1 Tx Timing: Recovery	
	1		E1 Tx Timing: Int. Osc.	
4	0		E1 Line Code: HDB3	
	1		E1 Line Code: AMI	
5	0		Reserved	
	1		Reserved	
6	0		Reserved	
	1		Reserved	
7-8	**7**	**8**	E1 Line Impedance	
	0	0	120 Ohms	
	1	1	75 Ohms	

Table A.2 DIP SW2 Memory Configuration and E1 Settings

Note 1: "0" is equal to a switch setting of OFF while "1" is equal to a switch setting of ON.

Appendix B. Interface Connections

B.1 E1 Line Connectors

BNC connector definition

Conn.	Pin	Designation	Direction	Function Description
TX	Center	TTIP	From *EOe-1*	Transmit data
	Sleeve	TRING	↔	Signal return
RX	Center	RTIP	To *EOe-1*	Receive data
	Sleeve	RRING	↔	Signal return

Table B.1 E1 BNC connector pin allocation

RJ-45 connector definition

Designation	Pin	Direction	Function Description
TTIP	4	From *EOe-1*	Transmit data +
TRING	5	From *EOe-1*	Transmit data -
FG	7		Frame ground[2]
RTIP	1	To *EOe-1*	Receive data +
RRING	2	To *EOe-1*	Receive data -
FG	8		Frame ground[2]

Table B.2 E1 RJ-45 connector pin allocation

[2] Frame Ground is connected by default. To disable, see special instructions on page 34.

B.2 E1 Line Frame Ground

To disable Frame Ground (Chassis) connections from the E1 signal carrying lines, remove the jumper on the JP1 header, located close to the RJ-45 E1 connector. Signal line frame ground should only be connected at one end of the E1 line to avoid ground loops and ground potential differences between the each end of the line.

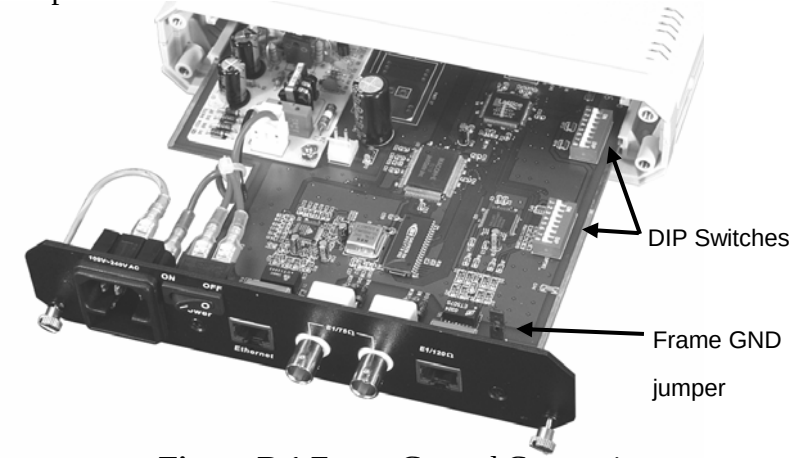
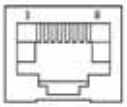


Figure B.1 Frame Ground Connection

B.3 Ethernet RJ-45 Connector



MDI	MDI-X
1. Tx +	1. Rx +
2. Tx -	2. Rx -
3. Rx +	3. Tx +
6. Rx -	6. Tx -

Note: Ethernet does not use pins 4,5,7,8.

Technical Inquiry Form

CTC Union Technologies Inc

Fax:(886)2 27991355

Tel:(886)2 26591021

E-mail:info@ctcu.com

Attn : Customer Support Department

From Company: _____

Name:_____

Tel: ( ) _____

Fax:( ) _____

- **MODEL: ☐ EOe-1**
- **ACTIVITY: As attached in DIP switch setting table (next page)**
- **System Configuration Drawing:**

- **Question:**

Technical Inquiry Form

MODEL No.: ☐ EOe-1

Please fill in the DIP switches configuration with '✓' marks into the following table. Send it to us by fax, and we will reply to you immediately.

SW NO.	DIP	Function Description	Your Setting		CTC Suggestion	
			ON	OFF	ON	OFF
SW1	1	MAC address filtering				
	2	802.3x Flow Control				
	3	Ethernet Auto-negotiation				
	4	10M/100M Speed				
	5	Half/Full Duplex				
	6	WAN Speed				
	7	WAN Speed				
	8	WAN Speed				
SW2	1	Memory Buffer Configuration				
	2	Memory Buffer Configuration				
	3	E1 Tx Timing source				
	4	E1 Line Code				
	5	Reserved				
	6	Reserved				
	7	E1 Line Impedance				
	8	E1 Line Impedance				

Please include any additional comments:

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